



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 4, 2019

EA-16-114

David Pierce
Closure Manager
Grants Reclamation Project
Homestake Mining Company, CA
P.O. Box 98/Highway 605
Grants, NM 87020

SUBJECT: HOMESTAKE MINING COMPANY OF CALIFORNIA, U.S. NUCLEAR REGULATORY COMMISSION COMMENTS ON REQUEST FOR AMENDMENTS TO LICENSE SUA-1471 TO CLARIFY AND UPDATE CURRENT LICENSE CONDITIONS AND COMMITMENTS; DOCKET 04008903; CONFIRMATORY ORDER EA-16-114

Dear Mr. Pierce:

By letter dated June 19, 2019,¹ Homestake Mining Company of California (HMC, the licensee) submitted an updated license amendment request (LAR) to the U.S. Nuclear Regulatory Commission (NRC) with the intent of clarifying and updating current license conditions and commitments. The NRC staff discussed HMC's original LAR² dated December 5, 2018, with HMC staff during a Project Manager call in February 2019 and provided clarification on what additional information NRC staff required for a detailed technical review. HMC withdrew the previous request on April 12, 2019,³ and subsequently provided some, but not all, of the information requested by the NRC staff in the current LAR. For example, HMC provided the NRC staff with a crosswalk (Attachment 3 to the LAR) between NRC Regulatory Guides (RGs) and HMC's Radiation Protection Program Manual (RPPM). The NRC staff finds this information helpful as a starting point for its review. However, other necessary information is required before the NRC staff can start its technical review. The examples provided in the enclosure represent the results of a limited review of the LAR by the NRC staff to determine acceptability. This letter documents the NRC staff's determination that the June 19, 2019, LAR does not provide sufficient information necessary for a detailed technical review.

In accordance with Title 10 of the *Code of Federal Regulations* Part 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

¹ ADAMS Accession No. ML19183A432

² ADAMS Accession No. ML18346A130

³ ADAMS Accession No. ML19109A110

If you have any questions regarding this matter, please contact me at 301-415-7777, or via email at ron.linton@nrc.gov.

Sincerely,

//RA//

Ron C. Linton, Project Manager
Uranium Recovery and Materials
Decommissioning Branch
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket No.: 040-08903
License No.: SUA-1471

Enclosure:
Details of NRC Staff Acceptance Review

SUBJECT: HOMESTAKE MINING COMPANY OF CALIFORNIA, U.S. NUCLEAR REGULATORY COMMISSION COMMENTS ON REQUEST FOR AMENDMENTS TO LICENSE SUA-1471 TO CLARIFY AND UPDATE CURRENT LICENSE CONDITIONS AND COMMITMENTS; DOCKET 04008903; CONFIRMATORY ORDER EA-16-114 **DATE: October 4, 2019**

DISTRIBUTION: H. Gepford, RIV R.Evans, RIV B. Pham, NMSS
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ADAMS Accession No. ML19256B148 ***via email**

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DATE	09/30/19	10/01/19	10/01/19	10/01/19	10/04/19

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DETAILS OF NUCLEAR REGULATORY COMMISSION STAFF ACCEPTANCE REVIEW FOR
HOMESTAKE MINING COMPANY OF CALIFORNIA LICENSE AMENDMENT REQUEST TO
CLARIFY AND UPDATE LICENSE CONDITIONS AND COMMITMENTS FOR NRC
MATERIALS LICENSE SUA-1471

Docket Number: 040-08903
Confirmatory Order: EA-16-114

NRC Staff Comments on License Conditions 10 and 32

Issue: It is not clear what constitutes U.S. Nuclear Regulatory Commission (NRC)-inspectable commitments from Homestake Mining Company of California (HMC) as presented in the current license amendment request (LAR).

Comments: The intent of the HMC LAR is to consolidate all its radiation protection commitments into the Radiation Protection Program Manual (RPPM). HMC is requesting NRC approval of its RPPM as its primary means of demonstrating compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20. In addition, HMC stated in the LAR transmittal letter that Standard Operating Procedures (SOPs) may be modified without a license amendment.

The RPPM lists the relevant SOPs in the Table of Contents, Table 2 of the main text, and Appendix A, of the RPPM. These SOPs are listed with specific revision numbers and dates, and there are different revision numbers and dates for identical SOPs in all three tables. If the RPPM is to be used as a license condition “tie-down” as requested by HMC (Attachment 1 to the LAR), then a specific RPPM revision number will need to be part of the tie-down condition. Because SOPs with specific revision numbers and dates are part of the RPPM, these SOPs would also become part of the tie-down license condition. In summary, any change to the RPPM or associated SOPs would require a license amendment. As this is not the intent of the LAR, HMC may want to reconsider how to construct the RPPM, or the license condition, or both, to alleviate this problem.

The NRC staff notes that while it is generally true that SOPs do not require license amendments to modify them, licensees do not generally rely upon SOPs to demonstrate compliance with relevant regulations and license conditions. In Appendix B, Line Item #8, of its self-assessment,¹ HMC indicated that the document specified in License Condition 14 (see separate evaluation of this license condition below), “Guideline [sic] for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials,” (the Guidelines) is “not referenced in the RPPM or SOP 12, but release limits are in agreement with the Guideline [sic].” In Section 4.3.3 of the RPPM, *Equipment Release Surveys*, HMC states that methods for releasing equipment and vehicles will be performed consistent with the methods specified in SOP 12, *Procedure for Performing Radiological Contamination Surveys (HP-2)*.²

The NRC staff reviewed a copy of SOP 12 and found a discrepancy in the SOP 12 release procedure compared to the requirements in License Condition 14. The NRC staff observes

¹ ADAMS Accession No. ML19161A335

² From Manual of Standard Practices, Policy Guidance Documents and Standard Operating Procedures, Rev. 3, December 23, 2016, HMC, Grants Reclamation Project

that the copy of SOP 12 available to the NRC staff specifies an administrative limit for gamma exposure rate ($\mu\text{R/hr}$) for unrestricted use while the Guidelines specify average and maximum exposure rates for beta and gamma exposure combined (mrad/hr) (Note “f” of the Guidelines). Moreover, SOP 12 specifies the use of a Ludlum Model 19 for the exposure rate survey, which is not sensitive to beta radiation. Furthermore, SOP 12 does not consistently require beta surveys for surface contamination and provides no justification for not doing so. Additionally, the “instructions” portion of the Guidelines is not included in SOP 12. Lastly, the minimum detectable activity section of SOP 12 is not consistent with RG 8.30, Section 2.11 (Table 3). Therefore, SOP 12, if characterized correctly above, represents an alternative procedure for releasing equipment and other items for unrestricted use that has not been approved by the NRC nor is it the same as the requirement in License Condition 14 (the Guidelines) or LC 32 (RG 8.30). Assuming HMC were to rewrite SOP 12 to be equivalent to the Guidelines, SOP 12 would have to be reviewed and approved by NRC staff and tied down in the license. This approach was considered and rejected by HMC in 1998 with License Amendment No. 31 (see section below on License Condition 14).

The NRC staff also reviewed a copy of SOP 16, *Instrument Test and Calibration Procedure (HP-10)*.³ SOP 16 provides instructions on how to calibrate radiological survey instruments. Section 4.7.2.1 of the RPPM refers to SOP 16 for the calibration of all electronic radiation measurement instruments. SOP 16 does not appear to account for the mixture of radionuclides encountered at the Homestake facility nor does it address the determination of minimum detectable activity (MDA) for scan surveys. Current NRC guidance⁴ addresses the differences between MDA determination for static and scan surveys. According to Sections 4.3.4 and 4.3.6 of the RPPM, scan surveys will be utilized for personnel and contamination surveys. In addition, the scan rate for personnel contamination surveys⁵ specified in SOP 12 appears optimistic compared to other values of scan MDA calculated in a manner consistent with NRC guidance by other licensees.⁶ The value for scan MDA is sensitive to both detector to source distance and scan speed. HMC should submit additional information on its MDA determination for static and scan surveys for NRC staff review and approval in order to demonstrate compliance with 10 CFR 20.1501(c).

Because HMC did not submit the SOPs listed in the RPPM, the NRC staff cannot determine what other commitments related to regulatory compliance are contained within them. HMC should submit all relevant SOPs in any future submittal for this LAR so that the NRC staff can make an appropriate determination. As an alternative, HMC should ensure that all necessary regulatory commitments are included in the text of the RPPM.

In addition, the RPPM itself contains commitments that do not demonstrate regulatory compliance and, in at least one case, is not consistent with information previously provided

³ Ibid

⁴ See, for example, NUREG-1575, Supp. 1, “Multi-Agency Radiation Survey and Assessment of Materials and Equipment manual (MARSAME),” January 2009, <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1575/supplement1/sr1575s1.pdf>, accessed September 6, 2019, and NUREG-1507, “Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions,” June 1998.

⁵ “...approximately 0.25 inches from the scan surface at a rate of approximately 2 inches per second.”

⁶ For example, using a detector to source distance of 0.125 in. and scan speeds of 0.2 in./s (0.5 cm/s) (ML15295A045) and 0.4 in./s (1 cm/s) (ML17313A803).

by HMC. For example, in Table 1 of the RPPM, HMC describes the regulatory limit for airborne radon as an environmental effluent limit with a value of 1.3 pCi/L above background. Footnote 9 to this value states “Assuming an equilibrium fraction of 20% and 75% occupancy.” However, in its August 20, 2018, letter⁷ providing a response to NRC staff’s request for additional information on HMC’s program for demonstrating compliance with public dose limits, HMC committed to assuming an equilibrium fraction of 50% and an occupancy factor of 100%.

HMC should ensure that any future submittal for this LAR is consistent with other commitments and requests under NRC review so that the NRC staff can make an appropriate determination.

The RPPM contains an Appendix B, titled *2018 Occupational Radiation Exposure Study*. This study was the result of an NRC inspection and was closed out in the November 2018 inspection report.⁸ If this appendix is to remain as part of the RPPM, the NRC staff will also have to review and approve the contents of this appendix. The alternative is to remove this appendix, maintain it onsite as requested by NRC inspection staff, and commit to updating evaluations of occupational dose as exposure conditions warrant.

LC 10 refers to a letter dated March 7, 1996.⁹ This March letter amended LC 10 with a revised Table 1, Environmental Monitoring Program Excluding Groundwater Monitoring (3-96). The NRC staff notes that the Semi-Annual Environmental Monitoring Report for July-December 2018 refers to Table 2-1, Environmental Monitoring Program Excluding Groundwater Monitoring. These tables are not identical. Specifically, the methods for conducting direct radiation measurements are different in the two tables. If HMC is using a table different from what is specified in LC 10 (for example, it is not a valid method) it should request a license amendment to change the table.

NRC Staff Comments on License Condition 14

Issue: HMC did not provide any justification for NRC staff to consider replacing the *Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials* (the Guidelines) with RG 8.30 or other (e.g., SOP 12) criteria.

Comment: HMC indicated in its LAR that the Guidelines is an archaic NRC document and that Table 2 of RG 8.30 is more appropriate. However, HMC did not provide any justification as to why the Guidelines are no longer appropriate or why the criteria in RG 8.30 is more appropriate. The values in Table 2 in RG 8.30 have not changed from when it was first issued in 1983 and HMC specifically requested¹⁰ the current language in LC 14 in 1998 so that NRC would not have to review and approve HMC’s SOPs.

There appears to be some confusion with HMC regarding the disposition of equipment and other materials with residual radioactivity between release “from restricted areas” and release “for unrestricted use”. The Guidelines were specifically developed for releasing

⁷ ADAMS Accession No. ML18240A143

⁸ ADAMS Accession No. ML18303A199

⁹ License Amendment No. 24, ADAMS Accession No. ML12291A915

¹⁰ License Amendment No. 31, ADAMS Accession No. ML080030065

equipment with residual radioactivity from regulatory controls.¹¹ The NRC provided additional clarification on the use of the Guidelines for beta-gamma emitting radionuclides in 1992.¹² The NRC staff has not found any history suggesting that the table values in RG 8.30 were to be used in place of the Guidelines. The text in Section 2.7 of RG 8.30 refers only to “release to unrestricted areas”. While equipment and other materials with residual radioactivity could be released to unrestricted areas using RG 8.30, HMC would need to address how it would continue to maintain regulatory control over those equipment and other materials. This would include addressing, for example, the security requirements in 10 CFR 20.1801 and 20.1802. In addition, HMC would need to consider any material with residual radioactivity in unrestricted areas in its public dose determination. These, and other additional measures, would need to continue until the material with residual radioactivity in unrestricted areas was released for unrestricted use using the Guidelines.

During a February 2019 teleconference, the NRC staff explained to HMC staff that the Guidelines are the only generally applicable Commission-approved procedures for releasing material for unrestricted use for materials licensees. HMC staff was directed to previous guidance¹³ given in a public forum describing the history and applicability of the Guidelines. HMC staff was also informed that the Commission upheld the validity of the Guidelines in the “Supplemental Information on the Implementation of the Final Rule on Radiological Criteria for License Termination” published in the Federal Register (63 FR 64132¹⁴).

Considering the regulatory history of material release generally, and the Guidelines specifically, the NRC staff suggests that it would take extraordinary measures to approve an alternate procedure for releasing equipment and other materials for unrestricted use. As described above, the Guidelines continue to be applicable to HMC’s operations. As such, this request appears not to be related to HMC’s confirmatory order. If HMC still wants to pursue this particular amendment, it should either provide justification why the Guidelines are no longer relevant to its operations or submit a separate license amendment request addressing this issue.

NRC Staff Comments on License Condition 21

Issue: Insufficient information provided for Radiation Safety Officer (RSO) qualifications.

Comment: It is not clear what reduced responsibilities and radiological conditions are related to the reduced training requirements.

Please provide a description of current RSO responsibilities and current radiological conditions that justify the proposed reduced training requirements recommended in RG 8.31.

¹¹ Policy and Guidance Directive FC 83-23, ADAMS Accession No. ML003745523

¹² Request for Interpretation Regarding Acceptable Surface Contamination Levels, ADAMS Accession No. ML16265A249

¹³ ADAMS Accession No. ML093510816

¹⁴ <https://www.govinfo.gov/content/pkg/FR-1998-11-18/pdf/98-30867.pdf> (accessed 8.29.2019)

NRC Staff Comments on License Condition 32

Issue: Insufficient information provided for Radiation Safety Technician (RST) qualifications.

Comment: It is not clear what reduced responsibilities and radiological conditions are related to the reduced training requirements.

Please provide a description of current RST responsibilities and current radiological conditions that justify the proposed reduced training requirements recommended in RG 8.31. In addition, please justify the substitution of “previous experience” for all education and training recommendations in RG 8.31. Your response should include a more detailed explanation of what this experience should entail as well as the amount of experience proposed for this position.

According to HMC’s description of the RST’s responsibilities, the RST may issue a radiation work permit (RWP) with additional monitoring for potential worker exposure to radioactive material. It is not clear to the NRC staff the difference between approving an RWP (by an RSO) and issuing an RWP. RG 8.31 and LC 24 (current amendment) recommend specialized radiation protection training for staff signing RWPs. Please provide clarification on this process.